

*Linking Estuarine Ecology and Community
Heritage: A Socio-Cultural Needs Assessment of
the Monie Bay Component*

**Final Report prepared for
The Chesapeake Bay National Estuarine Research
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I: Introduction

“Estuaries are dynamic ecosystems that form where rivers meet the sea. They come in all shapes and sizes...and share an incredible profusion of life”

--National Estuarine Research Reserve System

There is perhaps no better example in the United States of the ecological, economic and socio-cultural complexity of estuaries than the Chesapeake Bay. With a 64,000 square mile watershed extending from New York to Virginia and over 10,000 miles of tidal shoreline, this shallow estuary is a complex ecosystem rich in biological diversity. These geographical and ecological characteristics are impressive in their own right, but they acquire even greater significance and meaning when viewed from the perspectives of the Bay’s multiple stakeholders. For example, the Chesapeake provides watermen (commercial fishers) with harvests of oysters, crabs and fish—critical natural resources that support families and a way of life. For scientists, the Chesapeake’s ecological and biological complexity makes it a premier natural laboratory for study and applied work. For environmentalists, the Chesapeake Bay is an iconic symbol of the wonders and bounty of nature, which in recent decades has been compromised and is now in need of restoration. For residents in “Bay country,” the Chesapeake is the producer of a regional cuisine of crabs, fish and oysters, as well as a site for recreation and aesthetic enjoyment. For all, the Chesapeake Bay is the regional site of much of our environmentalism, a magnet for our environmental beliefs and values, a yardstick against which we measure our environmental hopes and needs (Paolisso 2005).

The study, use and appreciation of the Chesapeake as an estuary is widely promoted by government and non-government organizations, at the local, regional and national levels. The Bay is rich in environmental efforts to protect the estuary’s natural

resources in ways that promote sustainable use and harvests, including non-governmental organizations such as the Chesapeake Bay Foundation (CBF), the Alliance for the Chesapeake Bay (ACB), government and non-government collaborations, such as the Oyster Recovery Partnership, state government organizations, such as the Maryland Department of Natural Resources, and State and Federal government programs, such as the Chesapeake Bay Program, to name only a few. An important federal and state collaboration that is also present in the region is the Chesapeake Bay National Estuarine Research Reserve in Maryland (The Chesapeake Bay NERR-MD). The Chesapeake Bay NERR-MD is part of the National Oceanic and Atmospheric Administration's National Estuarine Research Reserve System. Created in 1972, the national system works toward building a network of estuarine reserves that captures the wide range of coastal and estuarine habitats found in the United States and Puerto Rico (NOAA n.d.). The purpose of NERR-MD is to manage protected estuarine areas as natural field laboratories and to develop a coordinated program of research and education (NOAA n.d.).

The Chesapeake Bay NERR-MD maintains a three-component reserve. The multi-component Chesapeake Bay NERR-MD reflects the diversity of estuarine habitats found within the Maryland portion of the Chesapeake Bay. Monie Bay on the lower eastern shore in Somerset County represents a lower Chesapeake Bay salt marsh. Otter Point Creek on the western shore in Harford County represents an upper main Bay tidal freshwater habitat. Jug Bay on the Patuxent River in Anne Arundel and Prince George's Counties represents a tidal freshwater river habitat from a developed watershed.

This report focuses on one of the three Chesapeake Bay NERR-MD components, Monie Bay. Monie Bay is a tributary of the Tangier Sound and contains open water,

tidal creeks, salt marshes and pine forests. Located on the Deal Island Peninsula, the Monie Bay component covers approximately 3,426 acres, making it by far the largest of the three components. Although comparatively large, Monie Bay has less developed education and science programs compared to the two other components, and has no permanent infrastructure, such as a visitor's center.

The importance of Monie Bay for research on the natural processes of the estuarine system and the impacts of humans on these processes has long been recognized. What has not been fully appreciated and understood is the cultural significance of the Monie Bay component and the potential for using this expanded significance in educational and scientific outreach efforts. The Deal Island Peninsula is home to a number of small communities comprised of families dependent on commercial fishing, farming and employment in nearby Princess Anne or Salisbury¹. In recent years these small communities, which traditionally have been socially organized around kinship, marriage and participation in local churches and civic organizations (e.g., Lion's Club, volunteer fire department), have experienced a significant influx of new residents from urban areas throughout the Mid-Atlantic who are seeking secondary homes in rural areas, preferably alongside or in sight of water.

Along with rising property values and changes in community composition have come increased cultural and ecological tourism. Monie Bay, located at approximately the midpoint of the Deal Island Peninsula, is geographically situated almost in the center of these broader socio-cultural changes, and as described in this report represents a natural

¹ The term "Deal Island Peninsula" is not an officially recognized nomenclature of the Monie Bay component and the surrounding communities. We use the category here to represent the geographical boundaries of the study area.

landscape where long-time residents and newcomers to the Peninsula can explore environmental and community interests.

Throughout the National Estuarine Research Reserve System (NERRS) there has been a recent trend for estuarine reserves to incorporate community and socio-cultural needs and interests into their management strategies (Schelhas, et al 2002). The Chesapeake Bay NERR-MD seeks to include the needs and participation of local communities in their various education and research programs. To help accomplish this, the Wildlife and Heritage Division of the Maryland Department of Natural Resources, which manages the Monie Bay component, contracted the authors of this report to undertake a socio-cultural needs assessment of the Monie Bay component. From February through July 2005, the authors completed anthropological field research on the Deal Island Peninsula, using a cultural model approach and a variety of data collection methods. The authors also had access to previous information on the communities and residents' environmental beliefs and values and uses of local natural resources through previous research conducted by one of the authors, who since July of 2000 has been doing field work in the Deal Island area.

The objectives of the socio-cultural needs assessment of the Monie Bay component were defined as the following:

- Use approaches from environmental anthropology to identify and evaluate the cultural beliefs and values used by different Monie Bay stakeholder groups to form their perspectives and positions on the potential ecological and community benefits of the component

- Identify the implicit and explicit cultural-ecological knowledge different Monie Bay stakeholder groups have about the component
- Provide guidance on how the identified cultural-ecological knowledge can be used to generate dialogue among community residents on future directions for the component that is inclusive of the range of stakeholder cultural beliefs and values
- Provide Maryland Department of Natural Resources with recommendations for expanding their scientific and educational outreach efforts for the Monie Bay component, which may be relevant to goals of the Coastal Training Program curriculum²

The findings and recommendations presented in this report represent a baseline effort to identify the range of cultural beliefs and values that affect different community residents' perceptions and understandings of the Monie Bay component. We begin the report with an overview of our cultural model approach to the study of environmental issues and a discussion of the data collection methods we used during fieldwork on the Deal Island Peninsula. In section III, we provide background descriptive information on the Deal Island Peninsula, the Monie Bay component, and the communities we identified as being more directly connected to the component, either due to spatial proximity or because of their particular use of the Peninsula's salt marshes, of which the component is a part. In Section IV, we provide information on how community residents understand

² The Coastal Training Program "provides up-to-date scientific information and skill-building opportunities to individuals who are responsible for making decisions that affect coastal resources" (NERR-MD brochure). It will address public concerns, environmental and cultural impact assessments, and detailed plan alternatives. The alternatives map out how environmental groups, government partnerships, and communities can contribute to preserving the environmental, cultural, and economic systems within the Monie Bay component.

Monie Bay and, more generally, the salt marshes. We use this explicit information to suggest that there are a number of implicit, cultural models about marshes that vary across residents depending on their commercial or recreational use of local natural resources, including marshes. We suggest that these cultural models of salt marshes represent an important cognitive foundation for identifying appropriate scientific and educational outreach efforts, and for involving the communities more in the stewardship of the Monie Bay component. In Section V, we present information on community residents' beliefs and values about science and education, and using collaborative learning as an approach for program building. In Section VI, the final section, we summarize the individual section findings and provide some overall program recommendations.

II: A Cultural Model Approach

“If we wish to understand the values and motivations that shape our own actions toward the natural world ...then the nature we study must become less natural and more cultural.”

--William Cronon 1996

Conceptual Approach

Within and outside of anthropology, culture is often understood as the traditions and economic practices of a community of individuals, typically living in identifiable, local places. For example, many in the Mid-Atlantic region will recognize and value something understood as “Chesapeake cultures,” and typically associate that meaning of culture with something perceived as “traditional” farmer or watermen communities. Increasingly, the lifestyles and livelihood practices of farmers and watermen are becoming understood and celebrated as essential components of our Bay cultural heritage (see Chambers (2005) for a critical examination of the cultural construction of heritage applied to the Chesapeake region).

The social science discipline of anthropology has long taught its students that culture is the “complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society” (Tylor 1871). As such, culture plays an important role in the comprehension and construction of a group’s understanding of, and relationship toward the natural world, among other domains.

In particular, many scholars have argued that the very conception of what qualifies as natural, as opposed to un-natural, is a cultural and historical artifact which differs across social boundaries (cf. Brosius 1999; Cronon 1996). These differences are

reflected in language, ritual, and beliefs about the relationship between the human and natural worlds. In turn, cultural values strongly affect the manner in which a society utilizes its natural environment for economic and social ends, the enforcement of property and use customs, as well as the form of social policy established for its long and short-term management.

The study of culture as associated with a place or community has a long, although not uncontested, tradition in anthropology (cf. Kuper 1999; Clifford and Marcus 1985). The representation of culture as only place- or community-based is, however, analytically underpowered, particularly for situations where multiple stakeholders use and manage a shared natural resource, whether at the scale of a large estuary (Chesapeake Bay) or, more specifically, with the management of sub-regions, the Monie Bay component for example. First, the emphasis on place does not focus our attention enough on exchanges and movements of beliefs, values and practices across groups in space and time. Second, it prioritizes the documentation of cultural beliefs and practices of Bay rural communities that are disappearing due to change and development. (Such an approach is arguably justified given the disappearance of many of the Bay's traditional lifestyles and practices.) Third, culture as place can very easily lead to static discussions of culture and cultural change. It does not give sufficient attention to the dynamic, pro-active role of culture as adaptive, as a system of beliefs and values that can be used, for example, to help protect and manage natural resources. And finally, this restricted view leads to an understanding of culture mainly as objects "out there" in space and time to be studied, from skipjacks to crab cakes to religious beliefs. These objects are often depicted as disappearing or as alternatives to contemporary, modern society. At best, the above

approach may lead to a selective — and at worse an overly romanticized view — of culture and community.

Anthropologists debate extensively over the meaning of culture (cf. Kuper 1999). Our focus on culture is what we feel distinguishes us from other social sciences. While place-based frameworks for understanding culture have been widely used, and continue to be used effectively, alternative approaches to studying culture have emerged that emphasize the de-coupling of culture from place and give priority focus to processes, within and across communities and individuals, that lead to the construction of cultural meaning. Rather than seeking to identify the “culture of X group” or “culture of Y group” the focus is on what creates cultural meaning.

In this study, the research questions become what beliefs, values and practices are applied to the landscape and represented by the Monie Bay component to create cultural meaning. What are those cultural meanings? What is their significance for how we understand the science, management and educational activities of the Monie Bay component? What variation do we see in stakeholder cultural understanding of Monie Bay within and across communities, perhaps along occupation or length of residence axes?

One alternative approach to the study of culture that avoids overemphasis of “culture as community,” which has also been applied in previous work in the Chesapeake Bay region (see below) and for other NERR sites is a cultural model approach. Chris Feurt, working in the Wells National Estuarine Research Reserve in Maine, states that “understanding conflicting cultural models can improve dialogue among stakeholders and

create policies and environmental solutions that benefit from a combination of lay and expert knowledge” (Feurt 2004).

Cultural model research seeks to understand cultural meaning that is implicit. Quinn and Holland describe cultural models as “presupposed, taken-for-granted models of the world that are widely shared by members of a society and that play an enormous role in their understanding of that world and their behavior in it” (1987:4). The use of a cultural model approach presupposes a definition of culture that emphasizes ideas, beliefs, values and knowledge, and directs a researcher to investigate how culture is cognitively organized and processed. Thus, culture is “whatever it is one has to know or believe in order to operate in a manner acceptable to [group] members” (Goodenough 1957).

A fundamental assumption of cultural modeling is that when individuals engage the world, they cannot possibly attend to it in all of its complexity. Consequently, individuals use models by mentally manipulating parts of a model to reason with or calculate in order to solve problems or interpret situations or events (D’Andrade 1995). Cultural models frame experience, supply interpretations of that experience and inferences about it, and provide goals for action (Quinn and Holland 1987). For the individual, the cultural models deployed are largely tacit and unexamined and often highly resistant to change (Quinn and Holland 1987).

Cultural models typically consist of a number of interconnected “schemas” (or “scripts”). A schema is the organization of cognitive elements into an abstract mental object with default values or open slots that can be variously filled in with appropriate

specifics. A robin or eagle fills in the default/slots of the “bird” schema, while hamburgers or salads fill in the “lunch” schema.

Schemas are key to information processing, and by definition reside in a person’s short-term memory. Along with models, schemas allow individuals to make sense of all the detailed and new information presented to the mind for processing. It should be noted that people do not always act in accordance with their cultural models, and may have good reasons not to do so.

One effective approach to identifying underlying cultural models of knowledge is to focus on *explanations* offered as part of *natural discourse* on the topic or domain at hand (Blount 2001, D’Andrade 1995, Quinn and Holland 1987). In offering explanations for why something is the way it is, individuals often present their understanding of a situation in terms of propositions and theories. A proposition is a statement asserting or proposing a state of affairs (Shore 1996). Following D’Andrade, “a proposition is the sense of something said about something (typically a sentence) and involves the integration of a relatively small number of separate schemas into a more complex schema (1995:180).” Propositions are culturally codified as slogans, clichés, wise words, maxims, and other formulaic statements (D’Andrade 1995). A theory is an interrelated set of propositions that describe the nature of some phenomena. Analyzing propositions and theories is an effective approach used by cognitive anthropologists to identify underlying cultural models.

Cultural Model Research on the Chesapeake

Cultural model research has been applied to help explain stakeholder responses to environmental issues surrounding the Chesapeake Bay. Kempton and Falk used cultural models to challenge the emphasis on media coverage as the main reason for an exaggerated public response in 1997 to fish kills, linked to the dinoflagellate *Pfiesteria piscicida*, in a small number of lower Eastern Shore tributaries (2000). Their thesis was that inappropriate cultural models were more responsible than faulty media attention for the poor match between public reaction and the known biological characteristics of *Pfiesteria*. Furthermore, they suggest that errors in journalism were also often due to reporters' application of inappropriate cultural models. The underlying reason for the use of these old cultural models is that the fish-attacking form of *Pfiesteria* is not similar to anything in our inventory of popular knowledge.

What were these inappropriate cultural models? Based on semistructured and informal interviews, five preexisting cultural models used for *Pfiesteria* were identified. These five cultural models suggested that people implicitly think of *Pfiesteria* as 1) pollution, 2) a toxin or poison, 3) a disease in fish, 4) a parasite in fish, and 5) a predator that attacks fish (Kempton and Falk 2000: 356). It is noteworthy that the model of *Pfiesteria* as a predator that attacks fish, which best approximated at that time the biological descriptions of *Pfiesteria* during fish-kill events, was reported by only 5% of 790 survey respondents. Kempton and Falk concluded that the public was most concerned about certain effects of *Pfiesteria*, even if scientists concluded that these particular effects were not harmful, and they remain less concerned about the effects that were of concern to scientists, such as exposure to airborne *Pfiesteria* toxins (359).

Another example of cultural model research applied to the Chesapeake is an analysis of watermen's reasoning about blue crab management (Paolisso 2002). The impetus for this research was the recent controversy between many watermen and state resource managers and scientists, over the status of blue crab spawning stock and over what actions should be used to restore the blue crab. Relevant to the present discussion is the fact that the watermen's cultural model for managing the blue crab fishery contains the same key elements as the scientific and resource management approaches (i.e., natural production, science and regulation). In the watermen's model, however, nature or God is the ultimate provider of crabs, which humans can reduce in number through greed (e.g., overharvesting), pollution or habitat destruction. The watermen's cultural model includes a role for regulation and science: the former should promote sustainable harvests (e.g., reduce greed/overharvesting and penalize polluters) and the latter should study negative effects of human activity (greed and pollution) on crabs (See Paolisso 2002 for a complete discussion of watermen's cultural model, including a diagram illustrating its main components and relations.).

On the surface, the watermen's cultural model is very reasonable, balanced and seemingly not that different overall from scientific and management models for the fishery. However, the watermen's model places the focus of science and regulations — which watermen almost unanimously believe are necessary — on the actions of humans, and not on the use of stock assessment approaches as tools for estimating the reproduction and abundance of crabs. Such a focus, they contend, comes between God's provisioning of crabs for watermen's use; a relationship that watermen believe is not amenable to reliable scientific investigation. This belief is evidenced, for example, by the

widespread conviction among watermen that you cannot predict or ever know how many crabs there will be from year to year. The intervention of regulations between God/nature and watermen is implicitly understood by the latter as restricting their access to what God provides to sustain their livelihood.

The cultural model of watermen's reasoning about blue crab management provides a critical and essential framework for understanding watermen's opposition to scientific findings and new crab regulations. The model illustrates key relationships among core beliefs and values that help to explain watermen's resistance. The model suggests that watermen will resist regulations that appear to interfere with God and nature's production of crabs, but will support science and regulations that improve on what nature provides.

Cultural Models and the Monie Bay Component

Cultural models, then, are constructed from a wide range of cultural, cognitive, social and economic sources, and provide powerful templates and schemas for what individuals and groups see as "environmental" and for what actions they choose as their appropriate response. The physical and natural world surrounding us is screened or filtered in part by these models, producing cultural constructions of the environment. These constructions can traverse or be constrained by group boundaries, and contained in them are strong beliefs and values about environmental risks, management, protection, rights and obligations. The cultural construction of nature, through cultural models and other explicit expressions, does not deny that a "tree is a tree," but expands our viewpoint

to include the fact that the same tree has different environmental meanings to different individuals and groups.

As describe in more detail in Section IV, the physical properties and ecological processes of the Monie Bay component are understood by most Deal Island Peninsula residents as undifferentiated from the larger state-managed Deal Island Wildlife Management Area and unmanaged or privately owned salt marsh area. Implicitly, at the levels of cultural models, there are different cognitive frameworks for understanding nature, that farmers and watermen parallel their views on crabs and *Pfiesteria*, and there are more functional or utilitarian models for the marshes in general, assigning this landscape protective and recreational values.

Finally, environmental issues and models are not neutral—they are loaded with political implications that require transparent methods, open agendas, and collaborative spaces. Our role as applied anthropologists should be situated within this political and environmental discourse. “One important challenge for anthropologists studying contemporary environmental issues is to make explicit the roles of beliefs, values, and experiences in the formation of cultural models that enable individuals to make sense of or understand today’s complex environmental problems” (Paolisso 2002). Utilizing knowledge from both perspectives will create a more adaptive, resource co-management policy.

Data Collection and Sample

Ethnographic Approach

At the most general level, we employed an ethnographic approach to collect information on the cultural beliefs and values used by Deal Island Peninsula residents to understand and value Monie Bay. Ethnography is a suite of methods often employed by anthropologists and other social scientists that is inductive in orientation and holistic in breadth of coverage. The specific methods used by ethnographers often include participant-observation, interviewing, and the use of questionnaires, all of which can produce both qualitative and quantitative findings (Agar 1996).

An ethnographic approach is particularly well-suited to a study of cultural knowledge and values applied to natural landscapes. Ethnography also provides useful information for the identification of cultural models. The fundamental goal of ethnography is to elicit informants' knowledge, perspectives and values on a topic, such as management and study of marshes, and then situate that elicited information in broader cultural frameworks, models or contexts of shared beliefs and values. It is precisely these broader shared cultural contexts, or cultural models in our case, which individuals draw upon to both understand and value phenomena and processes (e.g., marsh management). Ethnography as a suite of methods helps us understand the variation in stakeholder understanding and valuation of Monie Bay and the role of government in managing, studying and educating the public about the component and salt marshes in general.

At the essence of ethnography is the goal of understanding the stakeholders' point of view, which requires careful attention to a specific topic, such as management of estuaries through the use of reserves, but also equal attention to data collection.

Ethnographic data collection is a cumulative and iterative research process. We begin from a small knowledge base and work to continually expand that base. We also use it to constantly evaluate and, if necessary, correct previously made assumptions. The ethnographic approach allows us to understand the conceptual framework informants are using to process information about estuaries and marshes and allows us to build conceptual bridges between managing an estuary and other frames of cultural beliefs and values.

To assist us in the elicitation of individuals' views, beliefs and values about the Monie Bay component, we used five key methods common to ethnographic research: 1) review of existing information; 2) participant observation; 3) informal discussions; 4) key informant interviews; and 5) focus groups.

Review of Existing Literature

In order to be articulate and informed enough to interview informants, to understand what we were seeing in participant observation, and to develop a questionnaire, we needed to conduct a broad information review. We became knowledgeable about the various types of information, issues, and areas of uncertainty that are relevant to natural resource management, estuarine processes, and issues of cultural heritage representation, such as working landscapes. We familiarized ourselves with the socio-economic history of the communities, the role NERRS plays in marsh management and programming, and community-initiated projects and development.

We reviewed materials published by NERRS such as the Chesapeake Bay NERR Management Plan, which gave us insight into past programming efforts, the biological

and geographical data on all three Chesapeake Bay Maryland components, and research priorities. The main objectives throughout this project are exploring the possibility of integrating conservation and development projects as opposed to strict ecosystem protection. By reviewing both NERR management plans and existing literature on subjects such as working cultural landscapes, we were able to discover how the ecological aspects of the Monie Bay component could intersect with cultural values and resources; in other words, where cultural landscapes can be compatible with conservation goals.

Working landscapes promote a living culture where “cultural heritage places are best preserved through use...but the relationship must be a negotiated partnership” (Powell 2000). A particular focus in our literature review centered on eliciting environmental knowledge from our informants and the level of program participation informants would be willing to provide. “Human interaction with the environment is widely perceived both as the source of environmental problems and key to their solution” (Milton 1993). A thorough analysis of community interaction with the environment is recommended for articulating such values and practices of environmental leadership and responsibility. A working landscape is achievable only through active community recognition and participation in their natural and cultural resources.

Community interaction, a main component of participant observation, has been an important method in our data collection. In our collaboration with these local communities, we have not only gained further knowledge about environmental values and use, but the importance cultural resources hold in these communities. For “the ultimate goal of resource management must be the protection of cultural resources from

all disturbing forces” (Christenson 1979). The Monie Bay component is not only representative of important ecological processes but of a living symbol of the social and economic activities of the surrounding communities.

It should be emphasized that we strove to become reasonably accomplished at understanding these knowledge fields, to the degree necessary to understand the cultural elements, as a necessary platform. We have continued our efforts to better understand these knowledge fields as they develop, as new information becomes available, and as conditions change.

Participant Observation

Participant observation is a central method in anthropology that in part differentiates the discipline from other social sciences. The method of participant observation includes the explicit use in behavioral analysis and recording of the information gained from participating and observing. ‘Active participation’ is when the ethnographer actually engages in almost everything that other people are doing as a means of trying to learn the cultural rules for behavior (Dewalt, et al. 1998).

By interacting with the communities, observing their daily lives and behaviors, noting and informally questioning statements that could unearth implicit cultural meaning, we are able to weave our findings into a cohesive pattern of cultural and environmental interactions. Being able to participate in local community activities opens the possibility for greater understanding of cultural practices. Also, through this method, we were able to discern that community activities were greatly centered on the marsh and

bay waters, manifested in both recreational use and the economic roles of watermen and farmers.

The Principal Investigator, Michael Paolisso, has been carrying out participant observation research with Chesapeake Bay populations for the last five years. He has worked with watermen, scientists and resource managers as part of his long-term research interests in Bay environmental issues, with much of that work being based on the Deal Island Peninsula. Our use of participant observation methods in this project was built upon the base of contacts and information established during his previous studies.

Participant observation was conducted in informants' homes, places of work, and social gathering spots. For example, we would spend a few hours each day at the local general store, Arby's, talking with watermen, new residents, and business patrons on topics ranging from recreational activities to developmental impact on the local economy.

Participant observations were essential in becoming familiar with the pulse of the various communities and establishing rapport with the residents. Also, the Chance marina was an ideal location to converse with both recreational and commercial fishermen as they often gathered at the bait shop to relax and prepare for their trips. Frequently, these conversations and activities would touch upon issues pertaining to the objectives of this project, such as marsh management and environmental concerns; for example, water quality and erosion. Our daily observations were recorded into field logs which served as a reference guide to refine our interview protocol and frame our cultural models.

Informal Discussions

We conducted informal discussions with knowledgeable members of each of the stakeholder groups. We also traveled to both Jug Bay and Otter Point Creek components of the Chesapeake Bay NERR-MD to meet with key DNR staff members to discuss the working structure of existing research and educational programming. Also, attending workshops on cultural documentation and the roles of community in environmental stewardship were essential to both our preliminary research and conversations conducted in the field. Our conversations with community residents on Deal Island Peninsula, recreational users of Monie Bay, watermen, educators, and farmers revealed their perceptions of marsh protection and management. For example, we spent time in the general stores of Wenona and Monie/St. Stephens speaking to patrons and owners of local retail outlets, met commercial watermen on their boats, and visited teachers at their respective schools to review their current student environmental activities. We had conversations with local scientists, natural resource managers, county agents and environmentalists in collegial and social environments.

Key Informant Interviews

Key informant interviews provided us with a wide breadth of understanding about the range of beliefs and values held by our stakeholder group members regarding the Monie Bay component, the scientific and educational priorities of our informants, and the role of cultural heritage in resource management. Key informant responses allowed us to collect specific statements of individuals' explicit cultural beliefs and values about the Monie Bay component and environmental protection. In the key informant interviews,

we looked for repetition in responses and attitudes that indicated shared sets of beliefs and values. Key informant interviews also provided us with an expanded understanding of how and why stakeholders who are engaged in natural resource management issues conceptualize and understand ecosystem protection and possible education and scientific programming.

Protocols for conducting interviews included an explanation of our affiliations (University of Maryland Department of Anthropology) and tasks (to provide the Department of Natural Resources with information regarding the cultural and socioeconomic elements for appropriate NERRS programming concerning the Monie Bay component). We obtained informants' consent to share information with us according to Institutional Review Board (IRB) standards (refer to Appendix D). Questions were designed to elicit informants' knowledge of and opinions about Monie Bay, specifically with regard to the current uses and values toward the component, scientific concerns and interests, and the potential for cultural heritage representation in educational outreach efforts. We designed the questions using participant observation and focused conversation data to elicit comments on these topics. Our strategy for question development was to use key words or phrases that motivate informants to talk at length about their perceptions of Monie Bay and the broader concept of nature and resource management. We approached interviews in a conversational manner, but guided the interview along with both specific and open-ended questions (refer to Appendix A). This allowed us to obtain data about a comprehensive range of topics, while still probing for clarification of particular topics or issues. We encouraged informants to take the

conversation in multiple directions, because their revelations provided us with insight about their beliefs and values regarding the environment and the Monie Bay component.

We identified and contacted several key informants, who are skilled professionals from each of the stakeholder groups, which include farmers, watermen, and other (educators, business owners, retirees, students, county agents). Table 1 describes the breakdown of key informant selection and composition.

Table 1: Key Informant Statistics

Male Respondents: 22; 79%

Female Respondents: 6; 21%

Watermen: 6; 21%

Farmers: 8; 29%

Other (educators, business owners, retirees, students, county agents): 14; 50%

Long-Term Residents (<10years): 20; 71%

New Residents (>10years): 8; 29%

Our selection of twenty-eight key informants was based on their expertise and familiarity with issues and knowledge surrounding the Monie Bay component, length of residence, and profession. Key informants included representatives from county agencies such as the Wicomico County Agricultural Extension, the Maryland Critical Area Commission, state agencies such as the Soil Conservation Board, the Somerset County Arts Council, business owners running both retail and farming operations, commercial fishermen, and informants with varying lengths of residence in their respective communities.

One (or more) members of our research team interviewed each of the twenty-eight informants in person. Interviews were held in locations convenient to informants and lasted approximately forty-five to ninety minutes each, with some extending for longer periods. All twenty-eight interviews were documented with written notes and some digital sound recordings. Interview notes were word processed and organized into thematic categories. The data produced in key informant interviews provided us with baseline understandings of stakeholder perceptions.

Focus Groups

Focus groups allow anthropologists to both summarize key findings from informal and formal interviews and present the data to appropriate groups. These groups will comment upon the findings and hopefully add more relevant information. These groups contribute not only to the verifiability of the data but often shed light on any remaining issue under doubt. Often a questionnaire will be submitted for completion to the group participants. The socio-cultural needs assessment of the Monie Bay component utilized two focus groups (refer to Appendices B&C): teachers from Deal Island Elementary School³ and the Deal Island Community Youth Group⁴.

³ The Deal Island Elementary School is the only school remaining on the Deal Island Peninsula. There are one hundred and five students from K-5th grades and seven classroom teachers. Twelve educators participated in the focus group.

⁴ The Deal Island Community Youth Group is lead by Grant Corbin, watermen and softball enthusiast. Every Wednesday night, 12-24 kids participate in a weekly softball game and bible study. Two adults and twelve children participated in the focus group.

III. Deal Island Peninsula and the Communities around Monie Bay

***“We wouldn’t have bought down here if we thought it was another Annapolis”
—Wenona Resident***

The Monie Bay component is situated among several rural communities on the lower Eastern Shore of Maryland in Somerset County. The rural communities surrounding the Monie Bay component that were used for this study include Princess Anne, Westover, St. Stephens, Mt. Vernon, Oriole, Dames Quarter, Venton, Deal Island, Chance, and Wenona. “The Eastern Shore of Maryland has often been referred to as the land that time forgot. Stretching from Cecil County in the north, the region follows the Chesapeake Bay southward to form a diamond of tidewater counties shaped over the millennia by the sand deposits of the Susquehanna River” (Wennersten 1992). Some of the outstanding features of the Eastern Shore include family histories that can be traced back to the earliest settlement patterns in the United States, former booming commercial fishing and agricultural industries, and a deep sense of community and self-sufficiency. The Eastern Shore has experienced a dramatic increase of population re-settlement, partly due to the relatively low cost of waterfront property. “Until recently, the Eastern Shore was so isolated from the commercial and social mainstream of Maryland that residents usually thought of themselves as living in a land apart from the state” (Wennersten 1992). This sense of independence is still present in communities on Deal Island Peninsula.

According to the US 2000 Census, the population of Somerset County is 25,747 with a personal income per capita of \$18,057. Retail, farming, and commercial fishing

govern the economic sector. Salisbury and Princess Anne are the closest urban centers to the predominately rural areas. Caucasian and African American races constitute the majority of the ethnic backgrounds found in Somerset County.

“Everybody knows everybody,” the “isolation,” and the fact that “we’re a different breed,” were the outstanding comments made by residents when asked what they admired most about their communities. These comments suggest a quiet rural living where development and “city ways” are frowned upon. A sense of community, self-sufficiency, and hard work are values practiced by residents who remain content to be removed from a faster-paced way of living. “This is where I work...knowing everybody. [I’m] not impressed with other places—too commercial!” asserted a Deal Island waterman.

Driving down Deal Island Road (Route 363), communities are defined by their surrounding environments. For example, Mt. Vernon, Monie, Oriole, and Venton are farming communities surrounded by expensive acreage of farmland. Chickens, soybean, corn, and wheat farming are typically the most profitable, especially chicken farming due to the presence of local Perdue and Tyson processing plants. The communities of Dames Quarter, Chance, Deal Island, and Wenona are geographically unique from the farming community. These are known as watermen communities where houses are typically grouped closely together to accommodate the uninhabitable marsh land. The proximity to the Bay and Tangier Sound are ideal components for commercial and recreational fishing activity.

Old cemeteries and churches usually give the indication of an approaching town, as signs are few and far between. In fact, visitors often enter and leave a town without

realizing it. There is much history steeped in this thirteen-mile peninsula, as residents readily point out.

As one Chance resident explained, “About fifty years ago... [There were] 7 grocery stores in Chance, 6 in Deal Island, and 4 in Wenona. There were so many because it was difficult to get to Princess Anne—no developed roads. Now there is only Lucky’s [a convenience store/gas station]. It got too expensive to have many schools on the island and the county found that it was cheaper to bus the kids to Princess Anne. [Also] 30-40 years ago the marsh would be burned off and harvested every year to be used as packing material for shipping purposes.” People are “used to looking at the marsh.” Residents were forced to navigate the terrain as there were only dirt roads years ago and the roads in the winter were impassable. The skipjack captains would gather in the stores (the local social scene) on Saturday night and “spin yarns.” At one time there were “lots of people working on the crab boats—1000 skipjacks on the bay back then. All you see is masts.”

A turning point for the Deal Island Peninsula occurred in the early 1930s with the emergence of a hurricane. The hurricane of the 1930s washed away community structures such as warehouses, marinas, and general stores that once thrived on the fishing and trading industries. Land and coastal erosion eventually forced people off their lands, the latter succumbing to the marsh. Only a clump of trees remain on the marsh that gives any indication of previous settlements.

The commercial fishing industries, once in abundance, began a gradual decline due to low crab and oyster yields. Geographical isolation once again served the communities. However, with the paving of Deal Island Road, commerce, some relocation, and political

activity accelerated and spilled into Salisbury and Princess Anne. Interestingly, social and economic activity typically remained on the Peninsula.

Social activities are centered on religious institutions, family homes, and meeting centers. The area is predominately Methodist and families can date back their heritage hundreds of years. Recreational hunting, fishing, boating, and hiking are all activities that suggest a close tie with the marshes that surround their communities. “You can get close to nature,” suggests a Dames Quarter resident. Towns are small and are usually defined by church, family connections, and a historical sense of place. Long-term and new residents prefer to live their daily lives through interactions with family, neighbors, social organizations, and the marsh. A newly arrived full-time resident commenting on the attraction of the area, states, “[There is] good, basic stuff and [I like] a closed society.” However, these tight-knit communities where change occurs slowly are suddenly becoming transformed from working watermen and farming communities to a must-see for bird watching trips and high-priced waterfront property for urban dwellers. This change has greatly impacted the historically social and economic vibrancy of the area.

Though Somerset County is the poorest county in the state of Maryland (US 2000 Census), the area has remained economically self-sustainable through the farming and commercial fishing industries, even though these same industries are declining in both workers and financial profit. One can see, hear and smell evidence of working, rural life through the presence of chicken houses and crab shanties. More and more “transplants” (as locals like to refer to new residents) are arriving to take advantage of the proximity to the marsh and water. The price of land and real estate has steadily increased, leaving many families now struggling to pay higher property taxes.

The Monie Bay Component

*“There ain’t many times that I’m not out there [in the marsh].”
--Monie Farmer*

Designated as a component in 1985, Monie Bay, located on the Deal Island Peninsula, is one of three Maryland Components of the Chesapeake Bay National Estuarine Research Reserve (NERR-MD). The Monie Bay component, located on the lower Eastern Shore, is 3,426 acres that supports a diversity of wildlife, wetland vegetation, salt marsh habitats, and forested uplands [refer to Map I]. Recreational activities include crabbing, fishing, wildlife photography, and bird-watching. People are free to walk and hunt around the component—activities that embrace both entertainment and subsistence practices; however, camping is limited to the periphery of the land. Monie Bay has, for the most part, remained untouched and undeveloped. This is perhaps one of the more outstanding features of Monie Bay—it’s pristine natural condition.⁵ [refer to Map II]

Main access to the Monie Bay component is right off Deal Island Road in the community of Monie. However, where there was once a parking area to facilitate access, Hurricane Isabelle destroyed the entranceway and only marsh and guts remain up to the edge of the main road. Therefore, activities are confined to those involving a boat, such as duck hunting and recreational fishing.

According to the 1985 Maryland Water Quality Inventory, the water quality of Monie Bay was rated “good.” Pollution is at a minimum and bacteria are found only in some areas due to agricultural and natural runoff. “The largest watershed at the site,

⁵ There are, however, a limited number of scientists who were utilizing the component for biological research.

Little Monie Creek, which drains into Monie Bay, encompasses about 5 square miles. The depth of Monie Bay is about two feet at the mouth of Little Monie Creek and about six feet near Tangier Sound” (Chesapeake Bay NERR Management Plan 1990). The terrain is relatively flat and is home to various fish and bird species such as menhaden, blue crabs, the marsh hawk, the bald eagle, and the peregrine falcon.

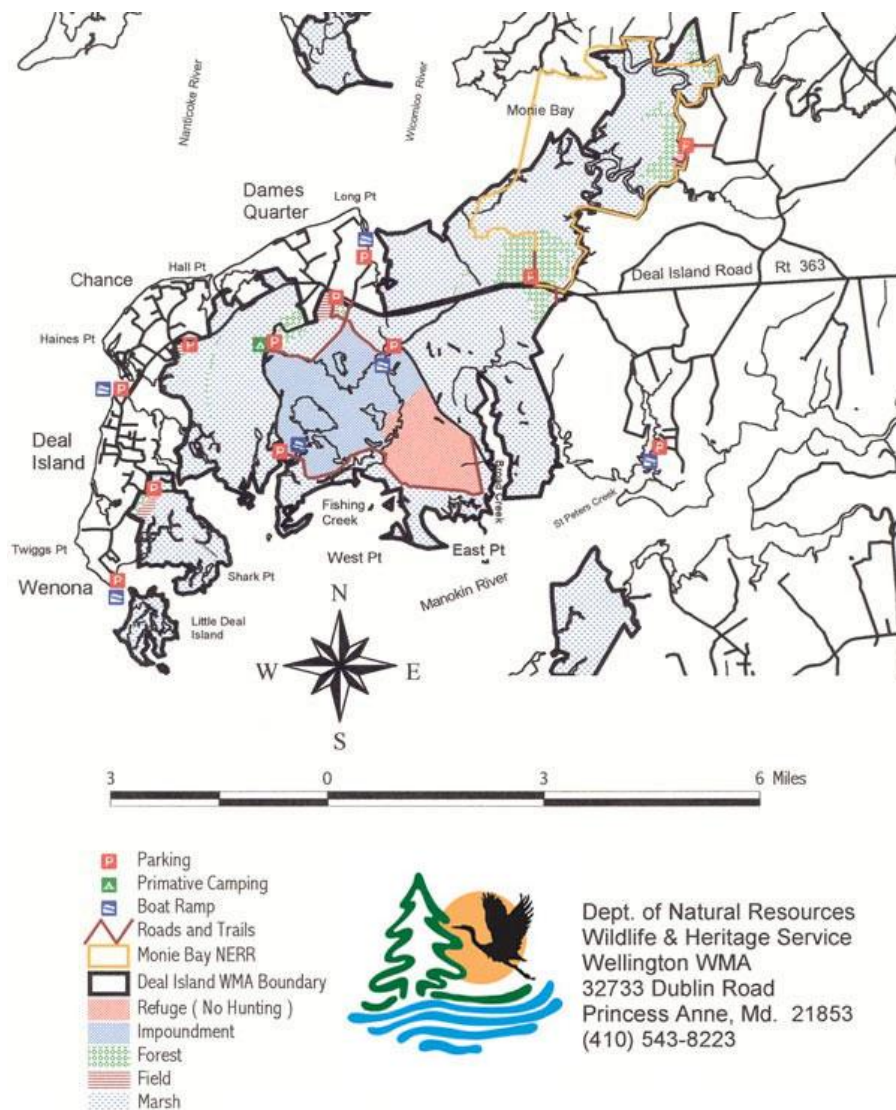
“Artifacts indicate the presence of native Americans in the Monie Bay area 13,000 years ago. During the early historical period, Monie Indians occupied this region...The Monie Component is known to contain at least six prehistoric archeological sites as a result of an archeological survey conducted in the DIWMA vicinity by the Maryland Historical Trust” (CBNERR Management Plan 1990). Even due to the high level of biological and archeological significance, traditional activities such as muskrat trapping, fishing, bird watching and hunting are permitted under Maryland state regulations. Monie Bay continues to be a popular fishing and trapping spot to this day.

Research priorities on the Monie Bay component are centered on natural processes and the effects of human impact on these processes. Research is encouraged that would focus on the following priorities: submerged aquatic vegetation, data collection on wildlife species, nutrient cycling, water quality, biological monitoring and the effects of natural and agricultural run-off in the marsh. The designation of Monie Bay as part of the Chesapeake Bay NERR-MD by DNR and NOAA heralded the beginning of a sustained and combined effort in Maryland to preserve critical salt marshes through scientific and educational outreach efforts.

The Monie Bay component is not only representative of a Chesapeake Bay natural resource, but also serves to preserve and reflect the rich web of cultural history

and stewardship. The component is a natural environment that supports scientific and education programming to “improve coastal resource management by increasing scientific understanding of estuarine systems and provide useful information to decision makers and the public” (NERR-MD website). This scientific information is useful for ways to foster a relationship between Deal Island Peninsula and the Monie Bay component that is mutually beneficial.

Map I: Deal Island Wildlife Management Area⁶



⁶ Source: www.dnr.state.md.us/publiclands/eastern/dealmap.html

Map II: Map of the Chesapeake Bay NERR-MD Components⁷



⁷ Source: NERR-MD website

IV. Monie Bay as Nature

*“It wouldn’t be Deal Island if there wasn’t a marsh”
--Deal Island resident*

*“I love the marsh, the waters....”
--Chance resident*

A large part of the natural beauty of the Deal Island Peninsula is in the transition of landscapes. Heading west on Deal Island Road (Route 363), one quickly leaves a small but growing housing development on the outskirts of Princess Anne. Soon, the landscape becomes one of predominantly crop and tree farms, with an occasional poultry house partially hidden from the road. Depending on the seasons, these fields can be either filled with corn and soybean crops, or in fallow. In between fields are large swathes of planted pines, which to the uneducated eye can appear as natural tracts of forest. There are also houses dispersed along Deal Island Road, but as one continues to drive west toward Deal Island proper, these houses slowly become fewer in number. Indeed, residences become slightly more congregated in areas identified only by their respective signage.

Approximately half way to Deal Island, one reaches the communities of Monie and St. Stephens. Here, the landscape changes in a visually powerful way. Suddenly, the landscape opens up to the Peninsula’s salt marshes, most of which are protected and managed by the state, as described in section III. This flat expanse of marsh grasses and isolated pockets of shrubs and small trees extends to the skyline, creating for the traveler the feeling of being in an undisturbed nature, with no visible size of human impact or presence (beyond the road corridor itself).

For approximately the next four miles, the traveler is surrounded by salt marsh, most of which is part of the Deal Island Wildlife Management Area (DIWMA), which includes the Monie Bay component. However, signage for the component is minimal, so most visitors do not realize that this open expanse of marsh is a protected wildlife zone. The traveler next arrives at Dames Quarter, a cluster of houses that hug the road and run southward to the Bay. Dames Quarter is more visually recognizable as a community than St. Stephens and Monie, since it is surrounded by marsh and water. Within approximately a half mile, one is again in open marsh, heading towards Deal Island, with a quick pass through the town of Chance (or Rock Creek as many local residents still call it). Then quickly across the bridge on to Deal Island, of which consists the two communities, Deal Island and Wenona. Deal Island itself has extensive marshes, both state and privately owned.

The purpose of this travelogue was to provide a sense of how ubiquitous marshes are on the Peninsula and how they represent such a unique and widely shared landscape. These salt marshes represent a natural landscape shared by all, from farmers to watermen to a wider range of other community residents. Visitors to the area also share in this landscape. The Monie Bay area attracts several bird-watching tours and water enthusiasts every season. It is a “must stop” on bird-watching outings.

It may not be an understatement to assert that no other form of landscape in the area of Monie Bay is so widely experienced and used. “I do enjoy the products that come from the marsh,” exclaimed a Princess Anne farmer. The seemingly undisturbed quality of the marshes, at least to the non-scientific eye, coupled with their extensive presence,

make them a natural symbol for community residents' views on ecology and natural resource management issues.

In this section, we present findings on the cultural perspectives informants use to situate the Monie Bay component within broader cultural models of marshes. We begin the discussion with results on the degree to which residents understand Monie Bay as part of Chesapeake Bay NERR-MD. Next, we provide descriptions of the residents' different uses of the salt marshes. Drawing on this explicit description of marsh use, we offer five cultural models that we feel residents use for the Peninsula's salt marshes: marsh as land buffer, marsh as natural water filter, marsh as protection against development, marsh as recreation, and marsh as cultural heritage. These five cultural models anchor residents' explicit understanding of marsh habitat (i.e., types of flora and fauna, seasonal changes, ebb and flow of tides, etc.). Combined, these implicit cultural models and explicit knowledge and use create the meaning of the marshes for residents, including particular areas such as Monie Bay. It should also be noted here that we did not find significant differences between communities in terms of residents' understanding, use and valuation of the marshes. We do report on some differences by occupation (i.e, farmer versus watermen).

Community Understanding of the Monie Bay Component

Approximately half of our key informants knew of Monie Bay as being part of Chesapeake Bay NERR-MD or part of the DIWMA; in fact, a few even went to the public hearing regarding the site designation. The remaining half of our key informants was unfamiliar with Monie Bay as part of Chesapeake Bay NERR-MD. While this latter

group was unfamiliar with the institutional and management context for Monie Bay, many in fact knew the Monie Bay marshes and waters very well, having hunted and fished in them.

We were somewhat surprised that more community residents did not know about Monie Bay as part of NERR-MD, since there is a large sign alongside the road just past St. Stephens that clearly states “Chesapeake Bay, National Estuarine Research Reserve, Monie Bay.” Deal Island Peninsula residents, particularly those who live in the communities of Dames Quarter, Chance, Deal Island and Wenona, regularly drive by this signage. However, we suspect that most community residents (and visitors) do not differentiate between the Chesapeake Bay NERR-MD sign and other signs further south for the Wildlife Management Area. To some degree, whether residents and visitors do or do not differentiate between signage is not significant, since the areas are managed in similar ways, and in fact have little de facto institutional differences between them (at least in terms of local management). However, the state-federal collaboration for the Monie Bay component does make it different from the rest of the DIWMA in terms of possible programming through, for example, the Coastal Training Program.

In response to our informal questioning about “how much do you know about the Monie Bay component and Chesapeake Bay NERR-MD,” the very common response was something akin to “I don’t know anything about the reserve system, but I do know the area,” followed by a description of personal use of the area for hunting, fishing, crabbing, etc.

In further discussions with residents about Monie Bay as a state owned component, it became clear that residents did not differentiate Monie Bay from the rest of

the protected wildlife marsh area on the Peninsula. As many reported, they thought Monie Bay was the same as the rest of the wildlife management area. Thus, an important early finding was that most residents do not differentiate among the various types of state managed wildlife areas in the marshes, except perhaps for hunters who hunt within the impoundment area.⁸

We also learned from early discussions that most residents do not know the boundaries of the state-managed marsh areas. With reference to Monie Bay, for example, a waterman told us how he used to hunt near Monie Bay, and didn't even know where the component began and ended, hinting that he may have even hunted illegally.

In conclusion, residents are aware and have knowledge about Monie Bay, and frequently pass through the community of Monie, located alongside Deal Island Rd (Rt. 363). However, they are unfamiliar with Monie Bay as one of three components of Chesapeake Bay NERR-MD. They are unfamiliar with the boundaries of the component, which in part may be due to the difficulty of accessing the component, except by boat.

Cultural Model: Marsh as Recreation (Uses of Salt Marshes)

***“I have to be a part of the land”
--Wenona Resident***

“I’ve been looking at marsh for a long time!” exclaimed a Deal Island resident. Many speak of the simple pleasure of walking through the various guts and back roads and looking at all the wildlife. In fact, all of the residents interviewed use the marsh in some recreational form, whether that be through fishing, exploring, hunting, or

⁸ The DIWMA impoundment is 2,800 acres of man-made pond within the 13,000 acres of protected tidal marsh and forested wetlands. The impoundment area is popular with local communities for hiking, fishing, and hunting purposes.

swimming. Because the marsh is such a constant, shared presence on the peninsula, one resident remarked, “We take it [the marsh] for granted because we’ve lived here.” This daily interaction with the marsh contributes and reinforces the multitude of attitudes and uses of the marsh.

Residents reported that they enjoyed watching the seasonal changes in the marshes, as they drove on Deal Island Road in their vehicles. Residents would comment on the water levels in the marshes, observations that they related to the ebb and flow of tides. Others would comment on the return of particular birds, most notably the osprey that nest on platforms that utility companies constructed on the top of telephone poles. Older residents commented to us that looking out at the marshes reminded them of earlier times when there were more communities in the area. These residents can point out clumps of trees and shrubs in the marshes and name the people and towns formerly present.

Recollection of these earlier settlements was occasionally followed with references to the old road that “meandered” through the marshes, connecting houses and communities. These descriptions conveyed a sense of a marsh much more occupied and connected to the daily livelihoods of the Peninsula residents. By conversing with local residents you will find how their intimate knowledge was conceived through childhood experiences of “mucking around” in the marsh and exploring the nesting ground of a favorite species of bird or fish.

The marsh is a “beautiful place” where people feel a need to be a part of the land and water. Residents described living in the area as an opportunity for “getting close to nature.” This connection is illustrative of the residents’ desire to see the marshes

preserved for continued enjoyment. There is no one specific place where people confine themselves to recreation. Usually people either explore the marshes in their own communities or within a few miles of their home. These activities occur throughout all seasons, usually dictated by what species hunting will bring.

The marsh is implicitly understood as a natural “playground” of sorts where respecting and preserving its natural resources are essential for future use and enjoyment. Residents share a cultural model of marsh as recreation. Monie Bay continues this tradition of preservation and community interaction by the state’s allowance of recreational uses. As a new resident commented, “I’d like to show these things [the resources of nature] to our grandchildren [and] to be able to pass that on.”

Cultural Model: Marsh as Natural Water Filter

***“I love this marsh. It’s our lives.”
--Chance waterman***

***“Nature takes care of itself if you leave it alone,
but most people don’t leave it alone.”
--Deal Island waterman***

The water filtering capabilities of the peninsula’s salt marshes are generally recognized by all community residents. Few, if any, would, however, claim to understand exactly how marshes perform this ecological service, but all recognize that wetlands such as marshes are a critical habitat in the Bay watershed because of their ability to reduce the amounts of agricultural nutrients (mainly nitrogen and phosphorous) and other pollutions that run off the land and into the Bay’s tidal waters. (Residents also recognize that marshes are critical habitats because of their biological diversity, too.)

Thus, implicitly, and without questions, all residents also value the marshes for their ability to enhance and/or protect water quality. Residents understand that poor water quality is one of the most challenging environmental problems confronting efforts to restore the Bay and its tributaries.

For watermen residents, the importance of marsh as a natural water filter acquires even more significance because of the close link between water quality and the health and productivity of fisheries, and in particular the blue crab fishery. Watermen, the same who hunt and recreationally fish in the marshes, understand that marshes help keep “pollution” out of the water. Like others, they do not fully understand exactly how marshes extract nutrients and pollution before water enters the creeks, sounds and bay. Rather, there is a trust that nature “knows what she is doing,” and that what we humans have to do is not mess up with pollution and mis-management what nature can do (Paolisso 2002; 2005). They fully acknowledge that one would have to be a scientist, and jokingly quip “a lot smarter than a waterman” to understand how it all works. Still, what is important is the strong cultural belief among watermen (and other residents, to varying degrees), that a top priority should be to not disrupt nature’s processes. Applied to marshes, this perspective calls for little disruption of the natural processes that occur in the marshes that in turn account for the landscape’s ability to filter pollutants from water. In terms of science and management, watermen feel that there is a need for research on how marshes extract pollutants, and the management efforts to protect those processes. The belief is that humans should not try to replicate what nature does, but rather ensure that science and management is used to prevent humans from disrupting natural processes such as the ability of marshes to filter pollutants.

The importance that watermen give to the water quality services that marshes provide is exemplified by their perspective that the antithesis of marshes---shore development of houses, condominiums, and businesses--- is one of the biggest threats to their livelihoods and ways of life, leading to the increased production of pollution and a simultaneous reduction in wetlands and marsh buffers between the land and water.

To summarize, all residents implicitly recognize the marshes for their ability to filter pollutants from runoff of water from land. All implicitly recognize the importance of scientific efforts to understand and protect these ecological services of marshes. Of the community groups, watermen may be the most interested because of the connection between bay water quality and their livelihood. However, the ability of marshes to filter water affects all residents, for example in terms of the quality and safety of the drinking water from their wells.

Marsh as Land Buffer

“There is no greater resource than the land.”
---Mt. Vernon farmer

A cultural model of the marsh as “land buffer” is very similar to the previous description of the water filter cultural model. As was the case for water quality, all residents recognize the importance of marshes as buffers between the bay’s tidal waters and land valuable for either farming, businesses or housing. Not surprisingly, farmers are acutely aware of the natural processes of marshes, given the direct effects of marshes on their farmland. They cite *Phragmites australis* as destroying the marshland, “phragmites is encroaching” but that is just “nature...doing its work.”

Two Monie/Venton farmers explained, “The marsh is changing quite a bit” and this deterioration originates from natural occurrences. The “inundation of tide water on the land” and erosion is cited to be a serious problem to the sustainability of the farmland and marshland—“nature’s creating ours [the critical marshes].” Marshland is turning into a mudflat because of the rising tidewater. The land is sinking and the tide is rising. Farmers claimed to have witnessed this transformation. The importance of community inclusion in scientific collaboration is apparent in the first-hand knowledge residents possess regarding natural processes. “We are not only losing wetlands to development but also to erosion,” added a Monie farmer. In addition, “Somebody should address runoff to the bay. If you look at a map of what the marsh looked like 30-50 years ago, we are losing the marsh not to just runoff but to erosion.” The state environmental groups, in their opinion, need to reflect more on these natural influences and not be so quick to cite farming as the main cause of polluting the Chesapeake Bay.

Cultural Model: Protection Against Development

***“I like it—nobody will build on it [the marsh]”
--Deal Island resident***

***“I guess the state can do better with it [the marsh]--it ain’t getting built upon.”
--Wenona waterman***

All informants reported that they see change coming to the peninsula’s communities. Although some residents would like to see more change, or different change, all are in agreement that they do not want to lose the character of the region, broadly understood as a rural area where people know each other and working the land and water defines the communities, economically and culturally. There is a strong sense

that if the rural lifestyle of the communities was lost, then the region would become another Ocean City or St. Michaels, full of tourists and new residents with few social and cultural connections to area's long time residents.

It is widely recognized that the large swath of protected marsh that encompasses most of the western half of the peninsula is a "natural brake" on development in the region. As part of the DIWMA, approximately 13,000 acres cannot be developed for housing or businesses. Even a cursory glance at a map [refer to DIWMA map in Section III] of the lower Eastern Shore reveals that this area is one of the largest "green" areas around the Bay. To residents and visitors alike, this marsh area is spectacular water-related property.

Related, currently the communities surrounding the marshes do not have public sewerage. Informants reported that some years back there was a referendum on whether to have public sewerage, versus septic tanks. The referendum was voted down. Part of the stated reason for a majority lack of support for a public sewerage system was the belief that the system would have to be situated in the marshes, which raised at least two concerns for residents: the ecological impact on the marsh, and, more directly relevant to this current discussion, the belief that it would hasten development.

The cultural understanding of the marshes as protection against development also brings with it a widespread acceptance of government intervention and management of the marshes. Farmers, watermen, and business owners of the communities surrounding Monie Bay typically view government intervention with skepticism and trepidation. However, an outstanding similarity emerged as all stakeholder groups agreed that some level of state protection over lands was necessary for ecosystem sustainability and

protection from development. Therefore, residents are open to some level of federal and state involvement. In the case of farmers and watermen, they are willing to allow the state to manage the marsh and component because they do not directly rely on the marshes for their livelihood. Thus, an opportunity for sharing science and natural resource management approaches with watermen, farmers, and other residents in ways that are not directly threatening to their livelihood exists. This is a major advantage, compared to discussing management approaches and natural resource regulations that deal directly with fishing and farming, where watermen and farmers often claim that regulations make it difficult for them to make a living.

Watermen were particularly adamant on the issue of state protection and intervention. The caveat is: as long as such regulations do not affect traditional uses such as recreational hunting and fishing. They believe that the state is the only agency to protect the land for future use. We also heard the sentiment that the state could do more. “Time for them [the state/DNR] to do more.” The activity “comes in spurts,” proclaimed a Chance resident. Buying up more marshland or undeveloped areas could prevent the development and urban sprawl that is already steadily encroaching on the peninsula.

Although farmers agree that some state protection is essential for ecosystem and wildlife preservation, this level of participation should be highly restricted to small land tracts and always in close collaboration with the farmers. While watermen, other local residents, and a couple farmers usually respond with “It doesn’t bother me” or “no, not really” to the question of state protection, the farmers appear to take a more critical stance. “I don’t think the state has any business owning the land,” proclaimed a Monie farmer. The current assertion that the land should be held under private, individual

authority parallels the governing spirit of independence and self-sufficiency that characterizes the area. An alternative to strict state control over protected lands are conservation easements. Two farmers interviewed hold part of their land under conservation easements. They appreciate the fact that not only were they assisting in the preservation of critical salt marshes but could still own the land. In conclusion, interviewees expressed that state protection is good for the “functionality of the marsh.”

Cultural Model: Marsh as Heritage

***“It ain’t going to be the old Deal Island anymore.”
--Chance resident***

Many informants expressed perspectives that suggest an implicit understanding of the marsh as part of the region’s cultural heritage. The descriptions and statements individuals made to us that support the presence of a cultural model of “marsh as heritage” cover a number of topics and issues. First, a number of older residents took the time to educate us about how marshes were used in terms of communities and settlements. While the marsh looks predominantly unoccupied today, in previous centuries there were more settlements and roads in the marsh. Older (and not so old) residents pointed out to us clumps of trees and shrubs in the marshes and named the people who use to live there. In recalling these earlier settlements informants made reference to the old road that use to run to Princess Anne, that “snaked and meandered” through the marsh and upland areas, connecting each settlement. Informants reported that travel to Princess Anne and beyond was easier by water, given the circuitous route of the old road and the often difficult travel conditions if the road was muddy. This description of a time when the marsh was more occupied conveyed a sense that at that

time the marsh was more directly connected with the daily livelihoods of Peninsula residents. Certainly muskrat trapping, hunting of waterfowl and crabbing in the marshes would have provided not insignificant complements to food procurement.

A number of residents situated their discussion of cultural heritage in Native American's use of the land, marshes and water of the region. Residents and visitors alike have discovered historical artifacts dating back to early Native American settlements. Residents feel "cultural heritage is very important" and would like to see Native American culture represented as well.

Conclusions

In conclusion, the Chesapeake Bay NERR-MD could tap into these cultural models of the marsh to coordinate scientific and educational outreach programming. A common theme threaded throughout attitudes and uses is one of conservation and use—both commercially and recreationally. In addition, there are minimal inter-stakeholder conflicts over the marsh. Conflicts over hunting and fishing on the component appear minimal, as residents still have access to recreate on the land and water.

V: Scientific & Educational Programming

“Yes, I believe in science...yet they [scientists] need to interact with these guys [residents] more.”

—Deal Island resident

Scientific research and state-sponsored educational programs have been largely absent from the Monie Bay component communities. This absence has not gone unnoticed by community residents. A Wenona resident echoed what we heard a number of times in interviews: “We would like to know this [scientific] information.” Without exception, all those interviewed expressed an interest and would even welcome more collaboration and involvement with scientists and the latter’s work. However, this openness is not without some reservations, questions and concerns. A number of interviewees expressed concerns about the “agendas” of well-intentioned scientists. There is a hesitation on the part of residents to accept the findings on various scientific projects that often neglect community participation and input, as these results can lead to negative economic consequences such as further coastal and land regulations. Dissatisfaction and mistrust is frequently a result from this lack of involvement. In this section, we describe the educational and scientific interests of our interviewees, followed by a discussion of collaborative learning theories and methods that prove to be useful approaches to programming.

Scientific and Educational Interests

“Hopefully they’ll [the scientists] will put things back the way it was—not change things. Without the marshland, it would close the community down.”
--Deal Island recreational fisherman.

As described in the previous sections, the residents of the Deal Island Peninsula take an active interest in their surrounding natural environment. This interest is, in fact, a necessity if one wants to live in an area where reliance upon natural resources is essential for economic livelihood of many community residents. In our interviews with community residents, we asked a number of questions about what type of science or research activities would be of interest (see Appendix A). In Table 2 we present the scientific and research topics identified by different stakeholder groups.

Table 2: Residents’ Scientific & Research Topics

<u>Resident Groups</u>	<u>Scientific Interests & Concerns</u>
Watermen	water quality, salinity levels, and sources of pollution impact of development, evolution of technology, coastal erosion, increased collaboration with scientists
Farmers	water quality, ecosystem change, and coastal erosion sources of pollution, agriculture education in schools, effects of marshes on ecology of farmland, increased collaboration with scientists
Other⁹	water quality, development and impact, the utilization of local knowledge in scientific research, various types of wildlife and their effect on the land and marsh

⁹ “Other” refers to professionals working in Princess Anne or Salisbury, educators, business owners, young residents, long and short-term residents.

As shown in Table 2, water quality is a concern shared by all resident groups.

Whether the resident is a farmer, waterman, or business owner, financial success is often dependent upon water quality and pollution levels, due to the pervasive nature of the bay's influence over economic sustainability. Understandably, all of these scientific interests and concerns intersect; however, each stakeholder group carries a specific research topic that holds high importance. For watermen, development poses a persistent threat to pollute the bay and their day-to-day operations. Farmers, commenting on how little development impacts their economic activity, cite coastal erosion to be the primary concern to the sustainability of the marsh and land. The main question on the mind of farmers interviewed is: How fast are the marshes eroding into the water? "Somebody should address runoff to the bay. If you look at a map of what the marsh looked like 30-50 years ago, we are losing the marsh not to just runoff but to erosion," stated an Oriole farmer. "Farmers are getting a bad rap for something they might not be responsible for." The remaining resident group, which includes educators, business owners, county agents, and students, though readily agreeing with farmers and watermen on the importance of water quality and erosion, are concerned with the lack of communication between residents and scientists.

"Water quality, erosion, rising tide levels—nobody has come to us with the answers. The farmers have been [unfairly] targeted. There is not enough adequate research," exclaimed one farmer. Current management plans and regulations tend to exclude collaboration from farmers and watermen. For example, "Maryland farmers believe that nutrient management regulations have devalued their knowledge, experience, and skill—their craftsmanship—and have threatened their ability to creatively design production

strategies that will meet farm and family needs” (Paolisso & Maloney 2000). Therefore, watermen and farmers tend to have deep reservations toward scientists as the latter have often neglected their input from coastal decision-making.

Yet despite the uneasy relationship between scientists and the resident groups, a strong commitment to science remains. A Mt. Vernon farmer put it quite succinctly: “Science is what promotes everything.” In other words, the farmers and watermen interviewed believe in science because it is important to the daily operation of their respective businesses. Science is what guides their technology and conservation practices such as incorporation methods for chicken manure, building ponds to control agricultural runoff practices, and trapping methods. One of the ways increased collaboration with the scientific community could contribute to the preservation of the marsh and farm land is through addressing these scientific research topics described in Table 2. As stated before, residents’ concerns arise over scientists’ intentions when resource users are silenced and regulated without a more interactive and collaborative approach to coastal and land management.

Collaboration between Community Residents and Scientists

As one young person commented, “I think it [communication] would be beneficial...the community is dying off... It [the community] needs to be preserved now.” Scientific research is one way to open the eyes of tourists and new residents to the issues affecting the environment and the socio-economic nature of the peninsula. The information and research must be localized; for example, more locally site-specific and issues pertaining to the needs of the communities must be conducted. “They [the

scientists] might get something done,” stated a long-term Chance resident. Scientific involvement can be inclusive of the communities’ needs if direct collaboration is practiced and a genuine interest in the communities is present.

One of the interviewed farmers has had extensive experience working with environmental and government organizations over soil conservation and managing farming practices. The following excerpt describes farmers’ frustrations toward the lack of understanding toward farming practices and pollution. Though agriculture plays a role in the degradation of the bay, other natural causes should not be overlooked as contributors toward pollution:

One of the biggest impacts denied by the government and environmental communities is that the sea level is rising and the land is lowering. This leads to the degradation—this is a fact: the water is taking the land. “You can see how the land has eroded.” The state Soil Conservation Committee has the photos and has been following this phenomenon over the past 68 years. Most of the devastation has occurred in the last 5 years.

People believe and focus on the assertion that agriculture is ruining the bay. People should be looking into these issues: 1). “no question that these islands are washing away.”—there has been no mention of this as a cause of the degradation of the Chesapeake Bay. 2). Rising tide levels. “I don’t think there is anyway to fix it” [the rising water]. I am concerned that agriculture is getting all the blame. Agriculture plays a role in the degradation of the Chesapeake Bay but it is not the culprit.

This disconnection between the farming and watermen community, scientists, and the general public only reinforces the view that agriculture and commercial fishing practices are detrimental to the Bay. “I don’t think the scientific community is the problem... We need to listen to the scientists...” A way to bridge this disconnection is through educational programming that would explore the operations of a working farm or a commercial fishing boat and the decisions that are involved in management strategies.

These programs would educate the public on how science and conservation play a role in their economic practices.

One waterman has not witnessed any “good” that the scientific community has accomplished due to negligence over conferring with residents. “I don’t want them to come down here and do it [the research] by themselves. The watermen know how to do it better,” proclaimed a new Wenona resident. “If it’s going to create jobs, give the locals first crack at it...management goes a lot better if a hometown boy manages it,” agreed another resident. These statements are illustrative of the need for more collaboration with resource users. How can researchers and educators communicate effectively with the communities? One needs to identify the multiple stakeholders that would be affected by any policy intervention and uncover their concerns and needs.

A resident active in the Wenona community commented on how science alone may not always have the answer. “Watermen know it through their heritage and scientists know it through their instruments.” They not only have a life-long connection with the area, but have learned a great deal about the environment by working the land and water. A Monie farmer explained the difficulties of working with the scientific community:

“I’m not an environmentalist but I don’t think we should damn the environment, full speed ahead. Wholesale development of the marsh is wrong. I would like to see unbiased research into this relationship between agriculture and the relationship to the bay—based on true science [without bias or a political agenda]. We don’t have the votes. All the research I think has been environmentally rooted with a bias toward that.”

A major obstruction to collaborative projects lies in residents’ fears over hidden agendas, as described earlier. Therefore, each stakeholder group must be transparent in

all stages of the project-planning process, especially pertaining to objectives, goals and research methods.

Suggested Approach to Programming: Collaborative Learning

Any program initiated by the Chesapeake Bay NERR-MD that wishes to be successful and useful to the community must create a collaboration framework with residents. Residents expressed a desire for more collaborative learning with the scientific community, but detailed specific criteria which is described below. Collaborative learning allows people from various educational and professional backgrounds to debate and share information regarding particular issues in a setting where constructive dialogues are encouraged.

Steven Daniels and Gregg Walker in their book *Working Through Environmental Conflict: The Collaborative Learning Approach* (2001) provide a useful and flexible framework for approaching environmental issues that are contentious, characterized by strong differences of opinions, and generative of cultural and economic conflict. Collaborative learning is a set of concepts and tools that can help craft effective policy or programming. Effective policy is defined as an adaptive process, uses the most appropriate science and technology, is implementable and has low transactions costs (ibid: 2). Additionally, effective policy needs social legitimacy, that is decisions should be rational and technically sound but also if people's lives are affected then they should have a voice in the process (ibid: 4). Finding ways to increase the quality of technical expertise, while simultaneously increasing the inclusivity of decision processes, is perhaps the fundamental challenge of effective policy formation (ibid: 6). Daniels and

Walker argue that collaborative processes that are inclusive and sincere have the potential to achieve balance between technical competence and inclusive deliberation (ibid: 10).

“Collaboration involves interdependent parties identifying issues of mutual interest, pooling their energy and resources, addressing their differences, charting a course for the future, and allocating implementation responsibility among the group” (ibid: 10).

A fundamental premise of collaborative learning is that controversy and conflict should be used to generate “social learning” among stakeholders (Daniels and Walker 2001: 6). The goal of this social learning is a shared, deeper understanding of a complex environmental situation. Thus, the role of natural resource managers, such as DNR and the National Estuarine Research Reserve, and community residents is to promote social learning, rather than to only make decisions on only one stakeholder’s behalf, and to help the public deliberate over the decisions that need to be made. Rather than view debate and controversy as managerial failure that make programming and implementation more difficult, resource managers should see them as natural and desirable aspects of the formation of public values, contributing to society’s self-understanding. The goal is to help stakeholders have genuine engagement, dialogue that takes into account a wide variety of factors, with increased emphasis on the normative, valuing, ethical sides, along with honest discussions of scientific and local-based knowledge and findings. The output is to have stakeholders generate a set of implementable improvements in a situation of mutual concern (ibid: 21).

We feel a collaborative learning approach provides an excellent framework for stakeholder dialogue on NERR programming and community outreach efforts for the Monie Bay component. Current conflicting positions and shared interests need to be used

constructively to generate a new discourse based on recognition that collaborative solutions must be based on complex, mutually arrived at, compromises that also function to promote trust and further understanding. The collaborative learning approach of Daniels and Walker (2001) is particularly useful in its eclectic offering of approaches to shape its implementation. As described in the following section, we will provide recommendations offered by community residents that offer excellent venues for practicing collaborative learning. In these specific recommendations, facilitators and participants can draw on a range of scholarly and applied work in conflict management, adult and experiential learning theory, and systems thinking that Daniels and Walker integrate into a collaborative learning process (ibid: 19-20).

VI. Conclusions and Monie Bay Programs Recommendations for Chesapeake Bay NERR-MD

In this final section, we first summarize some of the key cultural and community findings on how Deal Island Peninsula residents understand and value Monie Bay and marshes or estuaries in general. Next, we provide a series of specific recommendations for expanding the scientific and educational outreach for the Monie Bay component. We believe that these recommendations offer a number of opportunities for informing community residents and visitors to the peninsula of the research activities undertaken in estuarine environments, if not specifically in the Monie Bay component. These opportunities also provide a scope for integrating community interests and needs, particularly in the area of heritage, into NERR-MD educational outreach efforts.

Cultural and Community Relevance

As described in section IV, community residents expressed a strong and widespread interest in the marsh/estuary habitat of the Deal Island Peninsula. The marsh habitat, in which most community residents conceptually situate the Monie Bay component, has aesthetic and recreational use value, and is an environment that is considered a part of the communities' heritage. As described in section V, community residents are also very interested in the science that is undertaken in such estuary/marsh habitats. There was a sense that such science is critical to protecting estuaries, and that the research conducted also has indirect but important relevance to sustaining the livelihoods of farmers and watermen in the area. Of particular interest was the finding

that the majority of residents did not object to state management of the marshes, but in fact felt that state protection was essential to preserving the marshes and their many ecological and community roles. There was also wide-spread recognition by community residents, including both long-term and newcomers to the area, that the marshes and estuaries such as Monie Bay represent an important source for eco-heritage tourism, and there was expressed interest in using community resources, including human, to take advantage of this tourism opportunity. Not surprisingly, it was hoped that such tourism could be done in a manner that did not change the “social and cultural character” of the communities.

Consistent with the conceptual approach we used in this socio-cultural needs assessment, we reviewed the explicit statements informants provided us and our own observations from participant-observation, to identify implicit cultural understanding of the marshes, and by extension the Monie Bay component. We applied the cognitive structure of a cultural model—a number of cognitive schemas connected to form a simplified, shared mental model—to help us identify some of the most significant and meaningful cultural understandings of marshes by residents. We have proposed five cultural models for marshes: marsh as recreation, marsh as filter, marsh as buffer, marsh as protection and marsh as heritage. We have argued that these cultural models of marshes are to a significant degree implicit but convey significant cultural meaning. They function to help organize explicit information about marshes (including government efforts to manage, study and protect marshes), and, most importantly, they provide conceptual links to other social and cultural domains of residents, such as the livelihood for watermen and farmers. These cultural models do not require much discussion to raise

them to a shared consciousness. However, if they are not acknowledged, in education outreach efforts, for example, residents must draw upon other implicit cultural models to interpret motive and meanings. For example, we described earlier that farmers and watermen are suspicious of the “other agendas” of scientists. This other agenda is based on competing cultural models of how science works and who funds science. The cultural model is that scientists are employed by someone and they are not free to be objective in the end, without perhaps risking their job. It needs to be noted here that the issue is not so much which cultural model is correct, but rather that individuals must draw on shared cultural models to help them interpret reality. The shared interpretation is what provides the social cohesion and a sense of belonging to a stakeholder group: you implicitly understand where one is coming from, and you share his/her values, without the need to explicitly articulate agreement and disagreement.

In this report, we have used the approach of cultural models in an applied or practical manner. Rather than focus extensively on the individual schemas within each cultural model, we have instead conceptualized the cultural models as heuristics for generating dialogue and collaborative learning. The five cultural models identified can be themes that help facilitate learning and improve understanding among community residents (e.g., watermen or farmers compared to retiree homeowner) and between community residents and scientists/resource managers. The five models, either individually or collectively, can focus this learning while simultaneously educating residents and NERR-MD staff about the science and heritage of the Monie Bay component and the surrounding Deal Island Peninsula marshes and bays. Restated, cultural models can be the conceptual bridge that links science and community interests

in the Monie Bay component, and foster collaborative learning and program implementation. As described below, these collaborative education and outreach efforts can use a variety of topics or content and have multiple formats or processes for implementation.

Program Recommendations

Our study has generated awareness of the Monie Bay component and provided informants with opportunities to share their views on particular programs that NERR-MD and Deal Island Peninsula communities could undertake. These programs and activities vary in scope: institutional requirements, time requirements and resources—human and financial. We begin with opportunities that appear to be most feasible in terms of implementation and resources needed, and end with larger-scale activities that require significantly more planning and resources, but also carry with them a more sustained and expanded impact. For all these activities and recommendations, the goal is to improve the understanding by community residents of the scientific and ecological issues of relevance to estuaries and marshes, while simultaneously integrating community cultural and heritage interests and needs into estuarine reserve science, management and education activities. Operationally, the Monie Bay component is the focus of these recommendations.

Informal Talks and Presentations

Without exception, residents were interested in hearing more about the science being undertaken by NERR-MD and the ecology of estuaries and marshes. As mentioned

earlier, residents and visitors were interested in estuary and wetland wildlife, and recognized this as part of the natural resources of the peninsula. Many were also interested in the ecological role of marshes as pollutant filters for bay water. This latter topic was of particular interest to watermen, given the importance of water quality to having a healthy fishery. Farmers were equally interested in the role of marshes as buffer zones between water and land, and how marshes were changing in grass species and its effects on this buffer role (see sections IV, V).

Residents recognized that there was significant local history and heritage that could be presented in an informal talk series that focused on marshes. Residents were equally interested in learning about the role of marshes and estuaries in terms of sustaining farmers and watermen. Residents were also interested in hearing about the community's recreational use of the marshes. Many newcomers did not have access to the extensive knowledge of hunting and fishing in the marshes that is common knowledge to watermen and farmers (and other long-time residents). Integrated talks by local hunters and fishers with wildlife scientists were of interest to community residents.

Of particular interest to many community residents was the cultural history of the marshes and peninsula. It is widely recognized and feared that the history of the communities is a great risk of disappearing with the aging of the population. A number of older community residents are well-known for their interest, knowledge and collection of local historical information. This historical material includes information on former settlements in the marshes and their use of marshes and the Monie Bay component.

A final interest that could be included in a talk series is a focus on the peninsula's food production activities. Both farmers and watermen felt that the broader public would

benefit from enjoying the natural landscape of the peninsula, while at the same time learning about how farmers and watermen harvest the food people consume. It was strongly felt that any understanding of the area's natural environment should include a focus on food production, farmer and watermen livelihood, and today's challenges of sustaining families and communities through the harvest of natural resources. This was seen as central part of the peninsula's cultural heritage.

Community Eco- or Heritage Tourism

Many residents expressed an interest in participating in marsh or estuary tours. This participation included roles as both a guide and/or tourist. These outings or tours, which could vary in time from a few hours to a full day, could explore farming and watermen heritage, estuary/marsh wildlife, estuarine ecology, and the history of the region. As one Chance waterman stated: "I would love to participate in teaching, the integration of local and scientific knowledge, and tours and heritage." It was widely recognized that eco- or heritage tourism could be an important activity for community residents, both in terms of possible income generation and in terms of socially and culturally strengthening the community's sense of its character and history. There are already nascent efforts to start eco-tours in the area, and there has been an increase in planning and building of possible lodging for visitors coming to the area for its ecology and history. All interviewed who are involved in these early efforts are willing to work with NERR-MD as well.

Day tours or excursions to the Monie Bay component and other areas of the DIWMA were also seen as wonderful opportunities for local school children. Many residents expressed concern that their children were growing up without an understanding

of their local environment. As one Deal Island teacher stated, “Most kids have a general understanding of the environment, but it is not specific. People take it for granted that these kids have a lot of environmental knowledge because they live right near the water, they live in watermen and farming communities.” The focus groups at Deal Island Elementary School and the Rock Creek Church Youth Group found a lack of environmental knowledge among children. In the opinion of the participants of these groups, classes are not enough. Rather, what is needed is hands-on experience in order to promote greater awareness and appreciation for the natural world and the communities in which they live. There is, of course, the Wetlands and Wildlife Day event sponsored by the Department of Natural Resources and Chesapeake Bay NERR-MD. However, due to lack of funds and transportation, schools have been restricted in the implementation of outdoor fieldtrips to take full advantage of such opportunities.

Visitor Center or Museum

*“I’d like to see some kind of museum around here—there’s a lot of heritage.”
Chance resident*

Without exception, informants expressed a need for a place or places to focus the communities’ and NERR-MD’s education and outreach efforts. This place(s) was most frequently expressed as some sort of museum or visitor center, either situated in one place or consisting of multiple sites. Residents were also quite open to ideas about where to situate such a museum or visitor center. The main concern was to find a piece of land where it would be possible to build something, and to do that soon, since property values are rising quickly.

Another common theme that emerged in discussions about a museum or visitor center was a desire by community residents to balance the presentation of ecological and community/cultural materials. Residents felt that any museum would have to present more than just the science or ecology of estuaries/marshes. While the science was felt to be important, residents felt that for the community to become vested in the museum there would need to be a presentation of information and experiences that conveyed community life and heritage. Given the history of the area, it was not surprising that an important part of community culture and history residents wanted to see presented was skipjacks, the sail-powered vessels once widely used to dredge for oysters on the Chesapeake. However, residents also acknowledged that current fishing and farming practices deserve to be presented as well. Overall, the sense among community residents was that a visitor's center or museum could be used to educate people about life in the area.

There were differences of opinions in terms of whether the visitor center/museum should be in one place, or distributed in actual "living sites." One waterman from Deal Island expressed what others had also communicated, saying that "there are many sites throughout the area that are part of our heritage. They should be the focus of a museum, and not have pieces of those sites in one building." The type of sites mentioned that have heritage and environmental value include skipjacks, crab shanties, churches, cemeteries, fishing and crabbing sites, hunting and fishing locations, and places of natural beauty. These sites, combined, would constitute a "living museum" and would also involve and give something to families, thereby increasing a sense of ownership and involvement.

This idea is similar to other tourism programs on the Chesapeake, such as the Chesapeake Bay Gateways project.

The idea of a nature boardwalk or walking trails surfaced in conversations about a museum or visitor center. Many residents had visited other nature reserves or seen them on television and were familiar with the concept of providing self-guided tours. Again, this idea was supported if it included both ecological and community information. The idea of having community members become docents for these walking tours was also suggested.

At times our discussions with residents about a museum elicited comments about past attempts by the Deal Island communities to build a heritage museum. It is clear that over the past 10-15 years, if not more, there have been periods of significant discussion about building a heritage museum. A number of informants reported that The Deal Island-Chance Lion's Club has a Skipjack Heritage Committee that was working with the State and the owners of property in the Deal Island Harbor area in hopes of purchasing land and building a museum and possible park area. A planning document for such an effort was undertaken by faculty at the University of Salisbury. For a variety of reasons, the project stalled. While there have been not subsequent planning activities for such a museum, the interest and funds remain to contribute to a skipjack or heritage museum.

Finally, it was mentioned by a number of informants that if there could be a museum or visitor center, then it could serve as organizer of the above series of talks and excursion activities. The sense was that the communities would need to have a physical structure or sites where the ecological and heritage interests could be organized and given

a place. It was recognized that such a center would also be open to visits and might serve other community needs as well (e.g., meeting place for local groups).

Community Support: Volunteerism

Informants recognize that to organize talks, walks, and activities associated with a museum or visitor center, there needs to be active community involvement. While recognizing that in the past it has been difficult to generate wide spread community involvement in civic activities, informants reported that they sensed that “times are changing” in this regard. In part, this is due to two factors: first, there is an influx of new residents who bring many organizational skills and interests to community efforts. For example, newer residents have been joining the Deal Island-Chance Lion’s Club. Second, many of longer-term residents recognize the pace of change that is affecting the environment and their communities, and fear that if they do not get involved, they will lose what they value in their communities. Thus, most informants felt that there would be a good pool of volunteer help to collaborate with NERR-MD in education and outreach activities. Still, informants cautioned that during certain months, watermen and farmers would be too busy fishing and farming to participate much. However, these seasonal limitations were seen as challenges but not insurmountable, given the presence in communities of many others who don’t have such seasonal time constraints.

Maintaining Momentum

The above program recommendations offer a number of broad topics for

expanding NERR-MD education and outreach efforts in the Monie Bay component. Each activity, topic and approach requires a different set of implementation strategies, ranging from very informal organizing of volunteers, existing civic or church groups, to more involved and sustained planning that necessitates the development of new organizational frameworks and structures. Informants recognize that the development of a museum or visitor center is a long-term project, requiring significant planning, funding and time. On the other hand, informants also recognize that substantial human resources exist within the communities that could be organized immediately to accomplish some specific shorter-term goals, such as talks and tours. The ecological and community knowledge that would be the substance of these immediate-term activities exists in the communities and within NERR-MD (and the scientific community in Maryland). A concern expressed by informants was that there is no mechanism to harness and integrate these human resources into some immediate program activities.

This study has generated interest and raised awareness of the Monie Bay component, NERR-MD, and NERRS among community residents. The research for this study was undertaken primarily through an internship by a graduate student (Power) in anthropology. Her fieldwork was supported by the report's co-author (Paolisso), who is a part-time resident in Chance and has studied the region and Chesapeake Bay cultures since 1997. This internship and much of Paolisso's research is undertaken through the Department of Anthropology, University of Maryland, College Park. This department requires graduate students to undertake internships, and most students prefer to acquire field experience. Thus, an inexpensive mechanism to maintain the momentum generated by this study toward integrating ecology and community heritage in the Monie Bay

component would be through student internships. Student(s) could work with community members and NERR-MD staff, and be supervised by Paolisso, to help make progress toward selected activities that arise out of the above program suggestions. The ability to use student internships would alleviate the difficulty and/or need to find a local facilitator, at least in the short term. The suggestion to use student interns is offered not as a replacement for a community facilitator, but in lieu of one if funding is not available for such a position.

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Appendix A

Interview Questionnaire: Questions Asked of Every Respondent

Date & Time:

Place of Residence:

Explain the project (1-2 sentences): Who you are; Talking to people/marshes/wildlife management area—history and current use. National Reserve—supported through DNR and NOAA. Explain IRB (confidentiality/voluntary) and Recording.

PART I: INFORMANT BACKGROUND

Length of Residence:

Full Time: YES/NO

Current work/activities; grew up or moved in...

- § What year did you move into the area?
- § What brought you to the area (if not born in area of residence)?
- § What is/was type of work?
- § How long have you been working in your field?
- § What do you like most about your community?
- § What do you dislike or change about your community?

PART II: MARSHES OR WILDLIFE MANAGEMENT AREA

Explain Deal Island Wildlife Management Area

- § Do you ever go out into the marshes, the creeks, the bay waters, etc.?
YES/NO
- § Where do you go and how do you use them? (recreational and/or work)
- § When you drive through the marshes, what is it that you notice or find interesting? Does that change over the seasons?
- § What is it you don't like to see in the marshes? (for ex. trash, tourists, etc.)

§ Does the fact that a large portion of the marsh is part of the Deal Island Wildlife Management Area affect you?

§ Did you know about Monie Bay as a reserve?
YES/NO

PART III: OPTIONS FOR MONIE (LAND & WATER)

Show pictures from the book

Improve the management of the marsh to make sure people can get more of what they want from the marsh—people's marshes needs are being met. DNR and NERRS also want to improve community access and knowledge about the marshes/reserve.

Explain in greater detail the relationship between NERRS/DNR/NOAA (state and federally funded)

Share the nature, science and education for youth and adults (specifically teachers and church youth groups); Share the research priorities of NERRS: SAV and water quality

We would like to find out from the community what they think are some good and effective ways to do that. Talks? Marsh visitor center?

SCIENCE

§ What science might you be interested in? What are some issues you feel need to be addressed by the scientific community? (marsh filter nutrients, wildlife, etc.)

§ Do you feel the scientific community needs to be actively involved in any restoration, management, and educational programs?

§ Are you aware of any research being conducted on Monie Bay?

§ Do you wish to have the scientific research and results being conducted on the Eastern Shore more accessible to you?

YES/NO

Cultural Heritage/Development

Add "living sites"...network of locals, new and old, who can explain the working or cultural landscape.

Possibilities: nature center, living museum, heritage sites, science lecture series, etc.

§ The National Estuarine Research Reserve is expanding the role of the reserve to include possibly more science and cultural heritage—what would you like to see included?

Appendix B
Focus Group Questionnaire
for
Rock Creek Church Youth Group Focus Group
May 18, 2005

- What do you like most about where you live?
- What would you change or might dislike about the area?
- Do you ever go out into the marshes, the creeks, the bays, etc.? How do you use them and where do you go?
- What are some of the things you can tell me about the marsh/natural environment?
- What are some things that you would like to know more about the marsh/natural environment?
- What kind of educational activities might you be interested in participating?

Appendix C
Focus Group Questionnaire
for
Deal Island Elementary School
May 25, 2005

- What kind of educational and research programs would you be interested in?
- Do you feel we can get the parents involved?
- What sort of programs do you currently have?
- What is the feasibility of maintaining a program?
- What kind of cultural heritage would you like to see represented by the Reserve System?
- Do you feel the children know a lot about the environment?
- How do you feel they come about acquiring this knowledge?

Appendix D

INFORMED CONSENT FORM

Socio-Cultural Assessment of Monie Bay

I state that I am over 18 years of age and wish to participate in a program of research being conducted by Dr. Michael Paolisso and Lucinda P. Power in the Department of Anthropology at the University of Maryland, College Park.

The purpose of this research is to identify cultural values and beliefs toward the environment and Monie Bay from diverse stakeholder groups. This cultural knowledge will be further analyzed to uncover similarities and differences in attitudes and expectations between these stakeholder groups. The objective of this research is to facilitate discussion among decision-makers and stakeholders that will promote stewardship of the area and develop a Coastal Training Program for Monie Bay.

The procedures involve interviews to elicit knowledge and perspective of the environment and their socio-cultural importance. Questions are open-ended and during the interview project members will provide participants with a brief overview of what is known about the biodiversity and cultural diversity of Monie Bay, and the plan to implement a Coastal Training Program. Participant reactions to this information will be elicited.

All information collected from participants in the project will remain confidential. The names and contact information of all study participants will not be revealed or shared in public presentations or publications using the project's finding. There are no known risks associated with participating in this study.

The project is not designed to help me personally, but to help the investigator learn more about cultural knowledge and uses of the environment and Monie Bay. I am free to withdraw my participation at any time and without penalty.

For additional information on this research program and your rights and benefits as a participant, please contact Dr. Michael Paolisso (Principal Investigator), Associate Professor, Department of Anthropology, 1111 Woods Hall, University of Maryland, College Park, Maryland 20742-7415, Telephone (301) 405-1433, Email mpaolisso@anth.umd.edu

If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, 20742; (email) irb@deans.umd.edu; (telephone) 301-405-4212.

Printed Name of Study Participant _____

Signature of Study Participant _____

Date _____